V. "On the Action of Oils on the Motions of Camphor on the Surface of Water." By CHARLES TOMLINSON, F.R.S. Received May 26, 1890.

In Lord Rayleigh's paper on the above subject, read before the Royal Society on the 27th March last, and reported in 'Nature' of the 8th May, it is stated that a film of olive oil, in two or three cases, "was incompetent to stop the camphor motions upon a surface including only a few square inches."

I have often noticed this fact as a consequence of the use of chemically-clean materials. Water, contained in a shallow glass vessel, 4 inches in diameter, on the surface of which camphor fragments were active, was touched with rape oil delivered from the point of a penknife. The fragments continued to rotate on that part of the surface which had not been invaded by the oil film ('Phil. Mag.,' November, 1873). I had previously noticed that a drop of a volatile oil, free from oxidised products, could be spread over the whole surface of the water, without impeding the motion of the camphor fragments, which skated through and cut up the film. In the case of old volatile oils, redistillation was found to be necessary ('Phil. Mag.,' September, 1863). A similar effect was produced by a drop of creosote (or its constituent acids) on a film of a fixed oil that completely covered the surface of the water. The creosote repels the oil film, cuts it up in all directions, moving over the surface with great vigour ('Phil. Mag.,' June, 1867). So also by attention to chemical purity, a raft of mica carrying a bit of camphor will float about briskly on the surface of water night and day during a whole week and upwards ('Phil. Mag.,' December, 1869).

By attending to the chemical purity of the materials the results led to the explanation of many phenomena which had taken refuge under the vague term "molecular change," or "molecular condition," and to the discovery of other phenomena which had some influence in developing theory. I proposed to apply the term *catharised* to bodies thus made chemically clean, from *καθαρὸς*, "pure" or "clean" ('Journal of the Chemical Society,' April, 1869; also 'Phil. Trans.' for 1870).

I may be allowed to add that, in arriving at the true theory of the camphor motions and their varied kindred phenomena, Professor Van der Mensbrugghe was kind enough to refer to me in his second memoir, as "le physicien qui a le mieux préparé la vraie théorie de ces phénomènes."